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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/050,678

01/16/2002

Michinori Kishimoto

M2047-39

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12/16/2004

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EXAMINER

NGUYEN, DUC M

ART UNIT

PAPER NUMBER

2685

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,678

Applicant(s)

KISHIMOTO ET AL.

Examiner

Duc M. Nguyen

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 is/are allowed.
- 6) ☒ Claim(s) 12-16 and 23-28 is/are rejected.
- 7) ☒ Claim(s) 17-22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/29/03, 3/4/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The references listed in the information disclosure statements submitted on 1/29/03 and 3/5/04 has been considered by the examiner (see attached PTO-1449).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims **12, 14-16, 23, 26-27** are rejected under 35 U.S.C. 102(e) as being anticipated by **Shoichi (JP 11-122153)**

Regarding claim **12**, **Shoichi** discloses an antenna diversity communications device for communicating by means of frequency hopping, said communications device comprising:

- at least first and second communications paths (see Fig. 1, antennas 1, 2);
- a first antenna on said first communications path (see Fig. 1, antennas 1, 2);

Art Unit: 2685

a second antenna on said second communications path (see Fig. 1, antennas 1, 2);

a switching means for alternatively selecting one said first and second communications paths from said at least first and second communications paths (see Fig. 1, antennas 1, 2 and Abstract),

a reception information measuring means for measuring signal information that indicates a receiving condition of a path selected by said switching means (see Fig. 1 and Abstract),

a memory means for storing signal information measured by said reception information measuring means(see Fig. 1 and Abstract); and

means for selecting a one of said at least first and second communications paths based on said signal information stored in said memory means(see Fig. 1 and Abstract).

Regarding claims **14-15**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, it is clear that **Shoichi** would disclose memory means and switching means as claimed (see Abstract, wherein the detected level of every frequency is stored).

Regarding claim **16**, the claim is rejected for the same reason as set forth in claim 7 above. In addition, it is clear that **Shoichi** would disclose the information is updated each time the hopping is switched (see Abstract, wherein the detected level of every frequency is stored).

Art Unit: 2685

Regarding claim **23**, the claim is rejected for the same reason as set forth in claim 12 above. In addition, it is clear that **Shoichi** would disclose storing all the information as claimed (see Abstract).

Regarding claim **26**, the claim is rejected for the same reason as set forth in claim 12 above. In addition, it is clear that **Shoichi** would disclose the detected level is the received intensity (see Abstract).

Regarding claim **27**, the claim is rejected for the same reason as set forth in claim 12 above. In addition, it is clear that **Shoichi** would disclose the transmission is carried out using the switched antenna (see Abstract).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim **13** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Shoichi** in view of **Takai et al (US 5,561,673)**.

Regarding claim **13**, the claim is rejected for the same reason as set forth in claim 2 above. However, **Shoichi** fails to disclose the signal information is one of a combination of intensity, quality condition and error detection. However, **Takai** discloses an antenna diversity switching method wherein the signal information is a combination of intensity (RSSI) and error (BER) detection (see

Art Unit: 2685

Fig. 11A and Abstract). Therefore, it would have been obvious to one skilled in the art to incorporate the above teaching of **Takai** to **Shoichi** for providing a signal information as claimed, for improving system performance when selecting an antenna.

6. Claims **24-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Shoichi** in view of **Anvekar et al (US 6,594,475)**.

Regarding claim **24**, the claim is rejected for the same reason as set forth in claim 12 above. However, **Shoichi** is silence on selecting an antenna in an initial condition. However, **Ankevar** discloses an antenna diversity switching method wherein selecting an antenna in an initial condition is based on uniform probability (the antenna located closed to the center of the cell, see col. 4, lines 44-48). Therefore, it would have been obvious to one skilled in the art to incorporate the above teaching of **Ankevar** to **Shoichi** for providing an initial selection as claimed, to ensure sufficient signal strength is received by the base station during the first transmission from a mobile.

Regarding claim **25**, the claim is rejected for the same reason as set forth in claim 24 above. In addition, it would have been obvious to return the switching to the intial condition when communication are conducted for a prescribed period as disclosed by **Ankevar** (see col. 4, lines 30-42), for improving the switching performance next time a communication is initiated.

Art Unit: 2685

7. Claim **28** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Shoichi** in view of **Fakatselis et al (US 6,563,858)**.

Regarding claim **13**, the claim is rejected for the same reason as set forth in claim 2 above. However, **Shoichi** fails to disclose the signal information updating including concerns of the ACK/NAK information in a transmission response. However, **Fakatselis** discloses an antenna diversity switching method wherein the antenna switching is also based on the ACK/NAK information in a transmission response (see col. 15, line 22 – col. 16, line 17). Therefore, it would have been obvious to one skilled in the art to incorporate the above teaching of **Fakatselis** to **Shoichi** for updating ACK/NAK information as claimed, for improving system performance by utilizing feedback information of the receiving side.

Allowable Subject Matter

8. Claims **1-11** are allowed.
9. Claims **17-22** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter:

As to claims 1, 3, 17, 19, the cited prior art fails to disclose or make it obvious an apparatus or method for antenna diversity in a frequency hopping communication system which comprises components and steps as specified in

Art Unit: 2685

the claims, wherein a correlation of hopping frequencies is used in determining the switching, the update or the storing as specified in the claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bantz et al (US 5,507,035), Diversity transmission strategy in mobile/indoor cellular radio communications.

Kuroda (US 6,603,961), Diversity receiving apparatus.

Borg (US 5,329,548), Base station for a frequency hopping TDMA radio communication system.

Kotzin (US 5,455,962), Performance through half-hopping and spatial diversity.

Snodgrass et al (US 5,710,789), Signal synchronization system for encoded signal.

Eastmond et al (US 6,088,337), Method access point device and peripheral for providing space diversity in a time division multiplex wireless system.

12. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for formal communications intended for

entry)

Art Unit: 2685

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

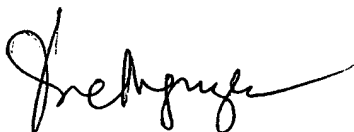
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (703) 306-4531, Monday-Thursday (9:00 AM - 5:00 PM). Or to Edward Urban (Supervisor) whose telephone number is (703) 305-4385.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Duc M. Nguyen

Dec 7, 2004

A handwritten signature in black ink, appearing to read 'Duc M. Nguyen', written over the typed name and date.